Defense Information Systems Agency

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DISA Technical Segment Architecture

3 May, 2010

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Agenda

- **Introduction**
  - **DoD & DISA Architecture Requirements**
  - **DISA Systems Engineering (SE) Program Guidance**
- **What is a Technical Segment Architecture (TSA)**
- **Why is DISA Creating a TSA**
- **Making the TSA Useful**
- **Summary & Questions**

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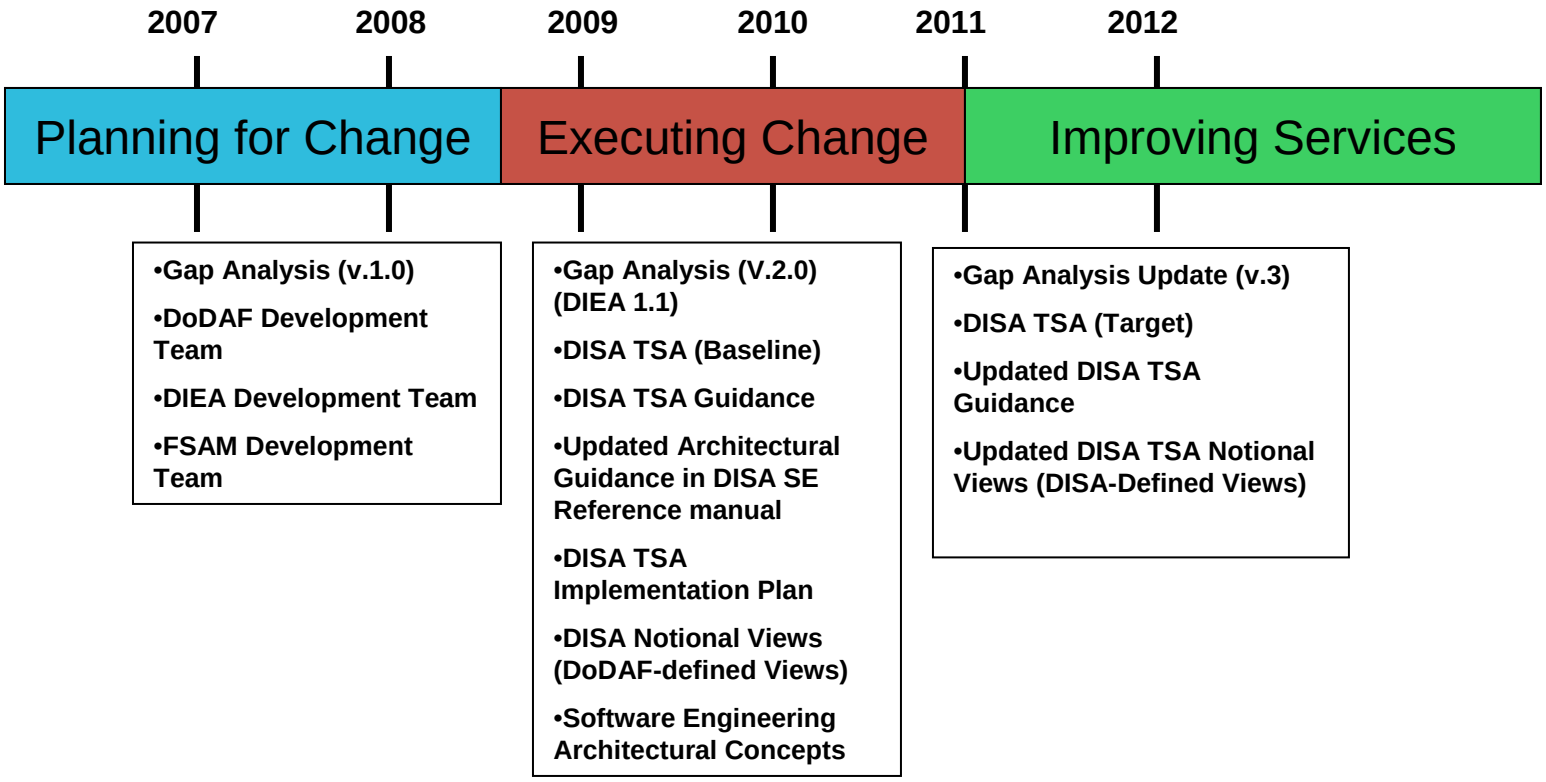
Introduction



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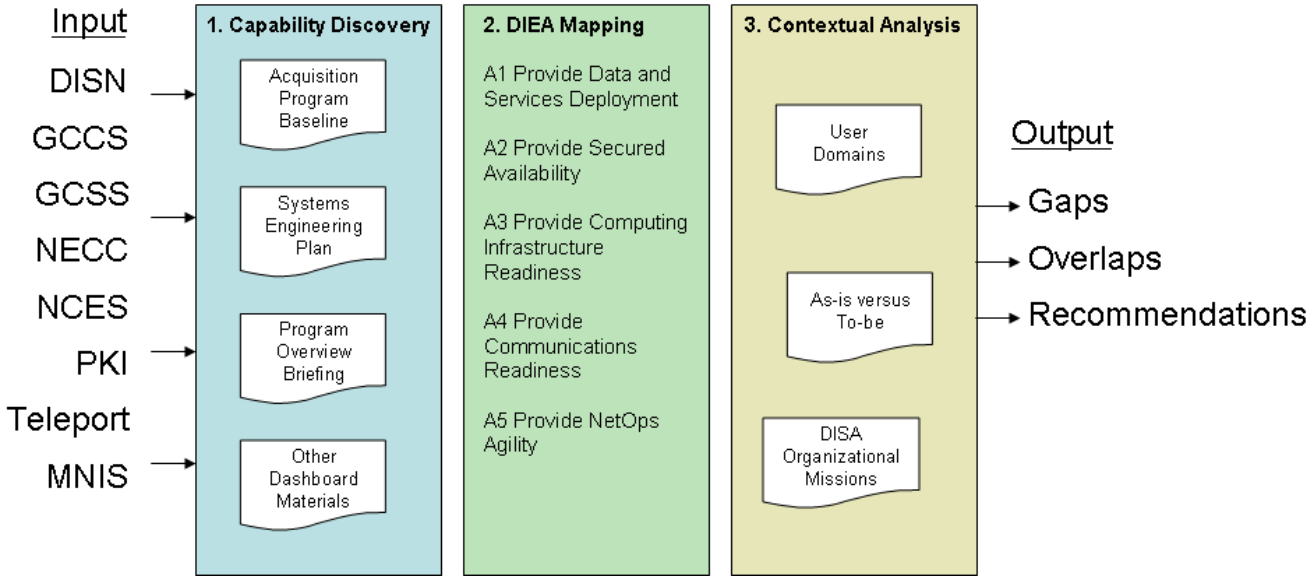
Planning for Change

Developed a Gap Analysis describing how selected major DISA engineering efforts were consistent with the Defense Information Enterprise Architecture (v.1.0) [Replaced NCOW Reference Model]



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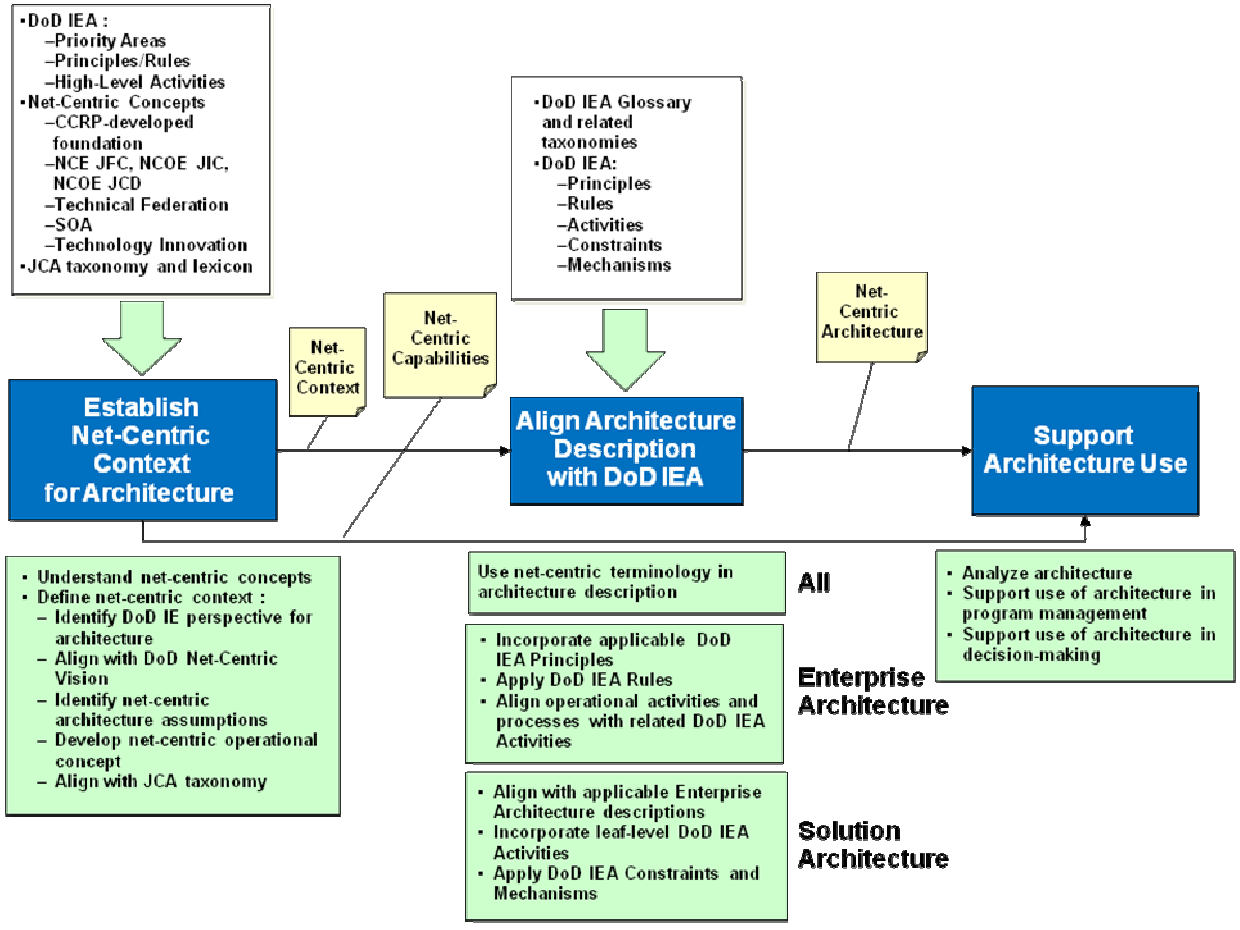
Utilizing the Gap Analysis



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Executing Change

Created core documents needed to ensure that a technical segment architecture could be developed as an integral part of DISA SE & SWE efforts.

- Developed a concordance aligning DoDAF 2.0, DIEA 1.1, and the FSAM, v.1.0 process steps to ensure that following the guidance developed would result in conformance with DoD and Federal requirements

- Developed a White Paper on architecture development during SW-intensive engineering efforts, and how to incorporate software/services-related architectural principles within the overarching SE Process

Appendix D – DISA SE Reference Manual covers architecture development for both Software/Services and Systems Development

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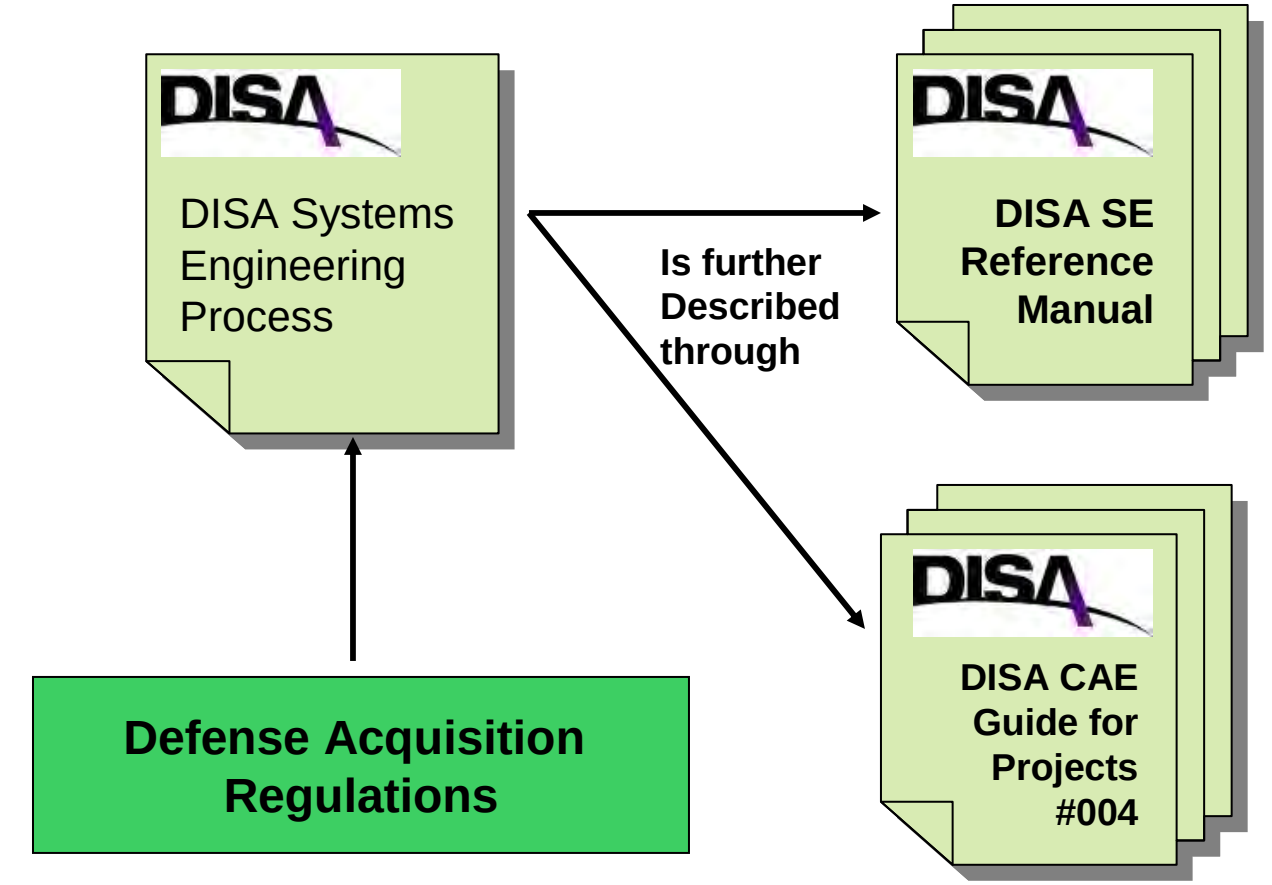
DISA Systems Engineering (SE) Program Guidance



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Executing Change

Developed the Baseline Technical Segment Architecture (TSA)

- **Volume 1 – The TSA Architectural Description – A formal description of the baseline architecture and associated views**
- **Volume 2 – The TSA Implementation Plan – A method consistent with DoDAF and FSAM for developing Solution Architectures supporting the TSA**
- **Volume 3 – DISA TSA Notional Views (DoDAF-described views) – Example views useful to developers and architects**

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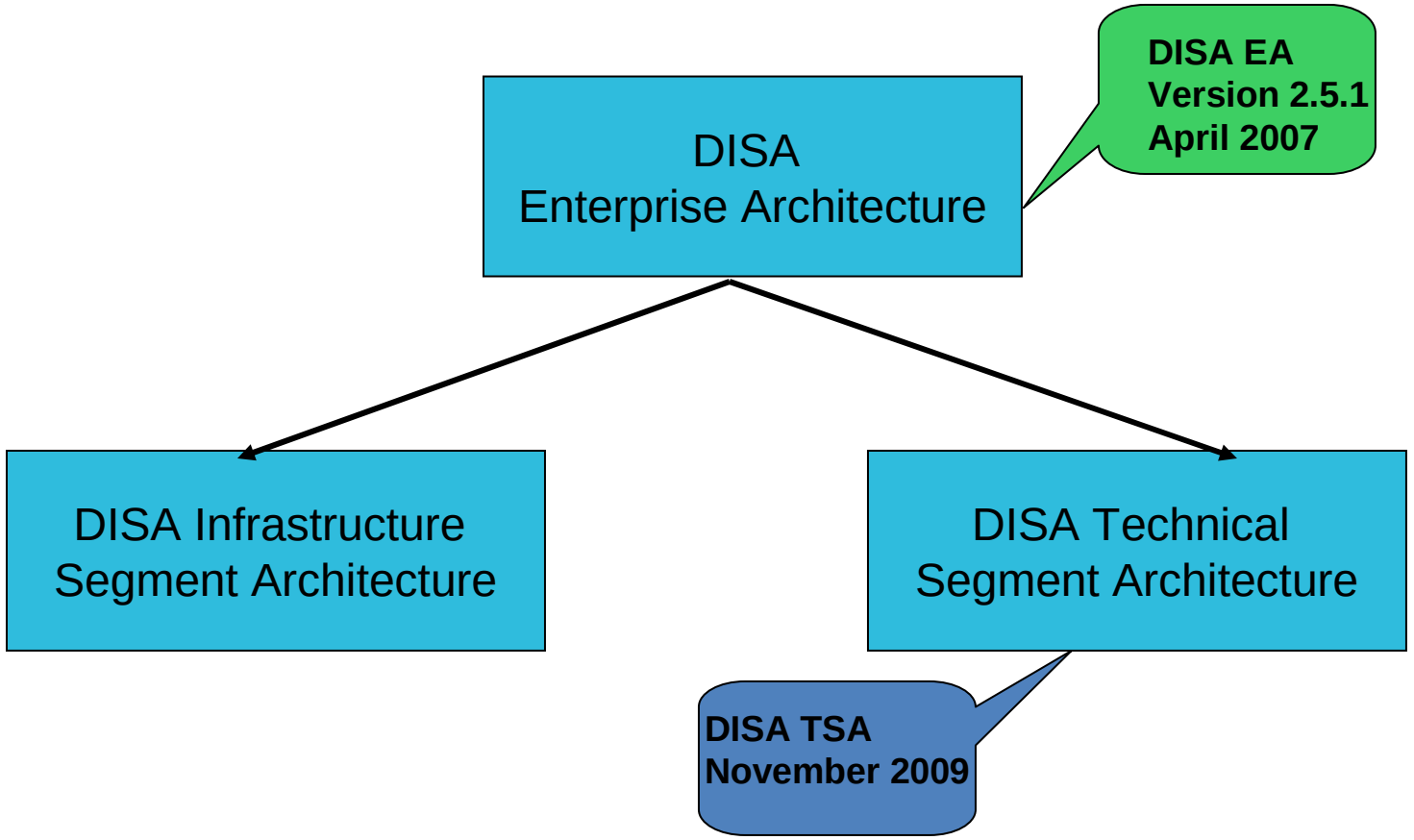
What is a Technical Segment Architecture



Technical Segment Architectures describe systems, services, applications, and connectivity from a developmental perspective

High-level View DISA TSA

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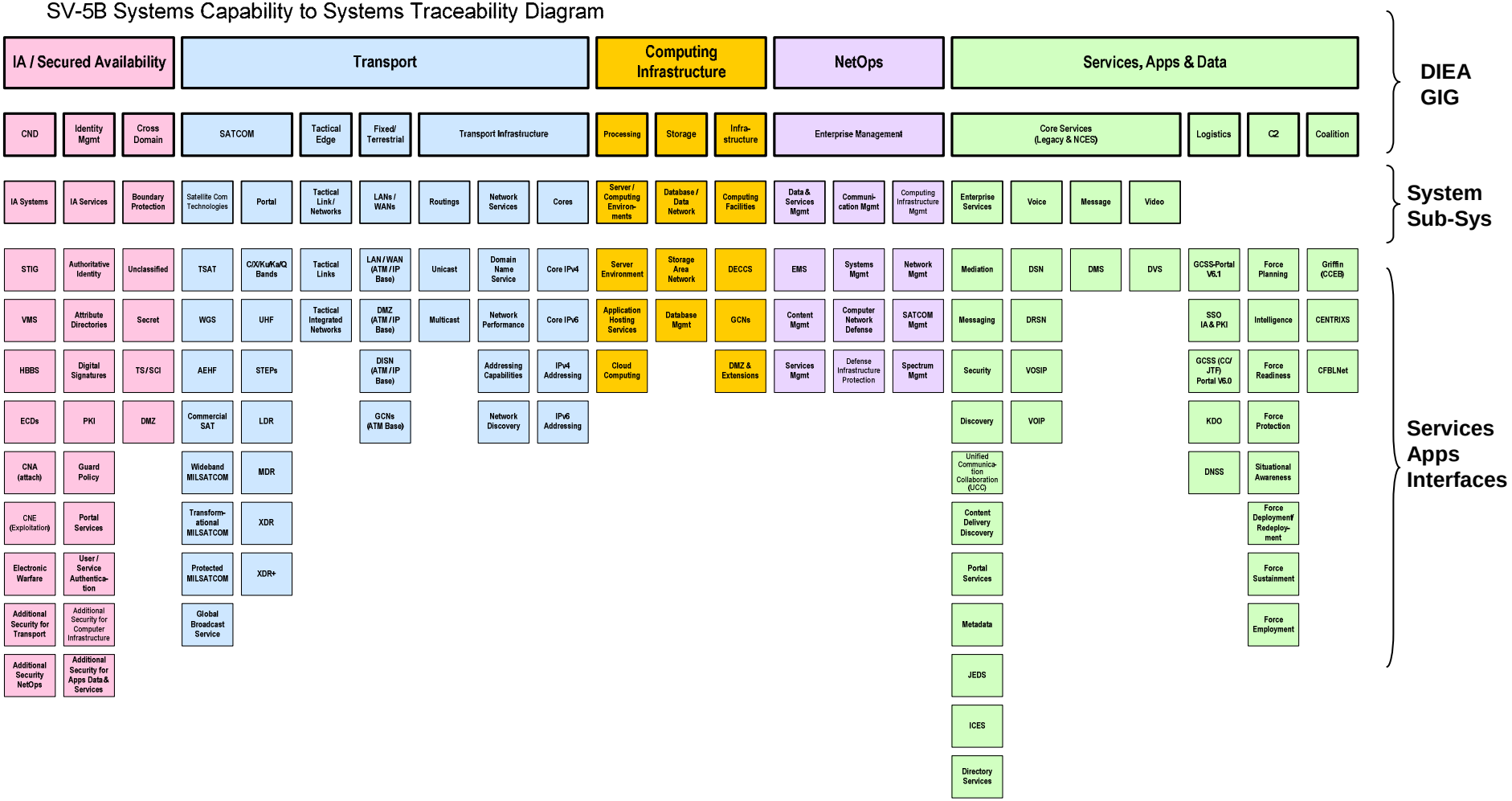
DISA High-Level Technical Segment Architecture
SV-5B Systems Capability to Systems Traceability Diagram



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Executing Change

Developed a minimum set of architectural views expected to be developed by each engineering effort

Model/View	Description	Use
AV-1	Overview & Summary Information	Describes the project and Architectural Requirements
OV-1	High-level Operational Concept	'50,000 foot' view of the project
OV-5	Operational Activity Model	Describes the major activities performed by the system/ service
SV-1	System Interface Description	Identifies Systems, Systems Components, and their interconnections
SV-2	System Resource Flow Description	System/Component resource flows
SV-5	Operational Activity to Systems/Systems Function Matrix	Maps systems/System Functions to Activities
SV-6	Systems Resource Flow Exchange Matrix	Describes the resource flows and their attributes
StdV-1 (Formerly the TV-1)	Standards Profile	Lists the DISR-registered standards employed in the System/Service
StdV-2 (Opt) (Formerly the TV-2)	Standards Forecast	Describes emerging standards expected to impact on the system/service in the future

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Improving Services – Next Steps

- **Gap Analysis Update (v.3) will bring into the analysis additional DISA programs and incorporate changes occasioned by DIEA v.2.0 and v.2.1**
- **DISA TSA (Target) will be developed to incorporate current and future development efforts described by the DISA Campaign Plan and the DISA GIG Convergence Master Plan**
- **Update DISA TSA Guidance that provides information on describing transitions from baseline current architecture to the target architecture**
- **Update DISA TSA Notional Views (DISA-Defined Views) to provide views commonly used in DISA and cross-referenced to the DoDAF Meta-Model (DM2) to ensure DISA Architectural conformance with DoDAF and the DoD Federation Policy**

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DoD & DISA Technical Architecture Requirements

- **Federal Segment Architecture Methodology (FSAM)**
- **DoD Architecture Framework (DoDAF) (V2.0)**
  - **Data-centric**
  - **Multiplicity of usable views**
  - **Fit-for-Purpose**
- **Conformance with the GIG and the DIEA**
  - **Global Information Grid, Operational Reference Architecture**
  - **Defense Information Enterprise Architecture**

Documents created using the TSA templates and data are automatically conformant with the FSAM and DoDAF

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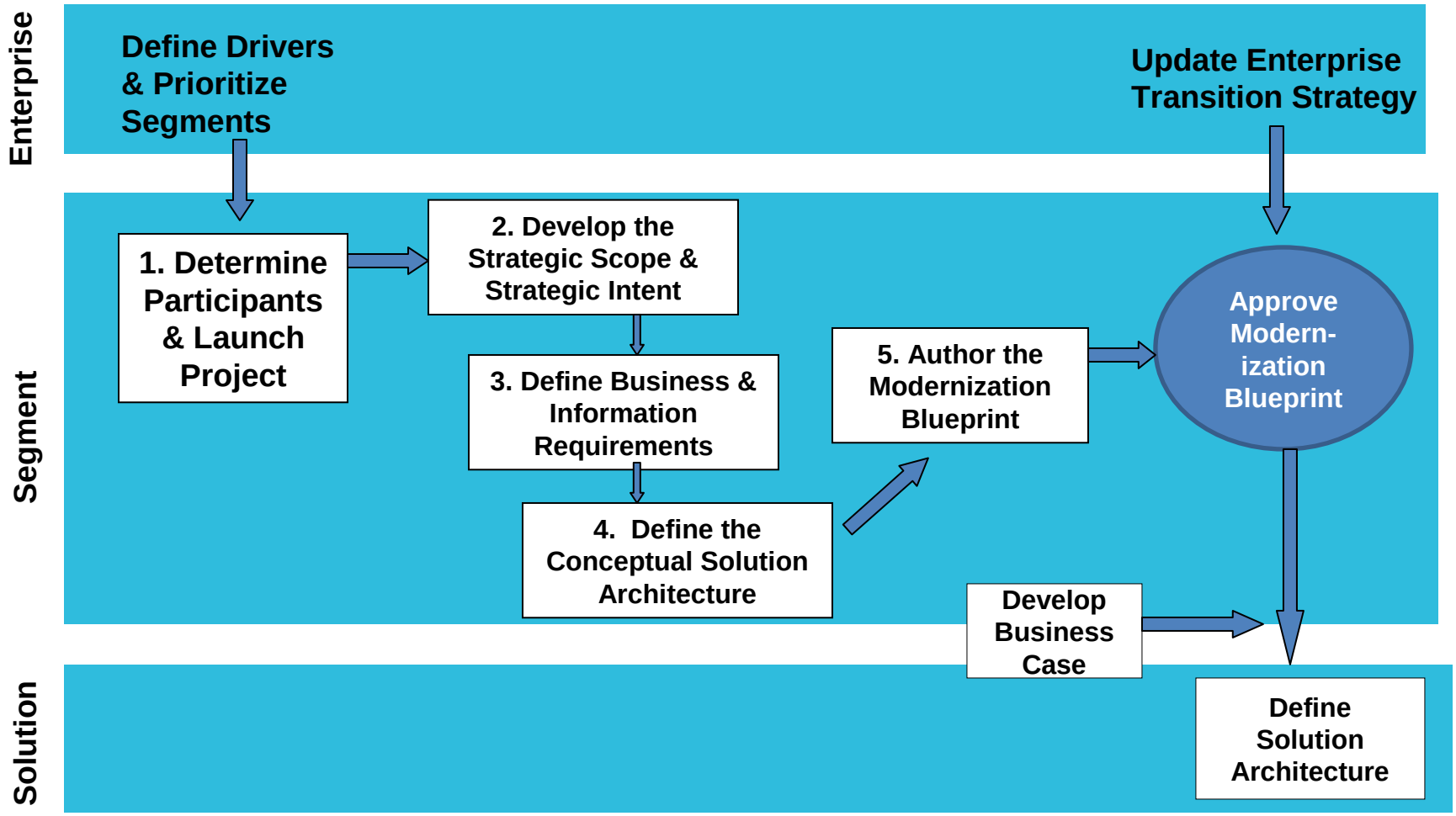
Federal Segment Architecture Methodology (FSAM)



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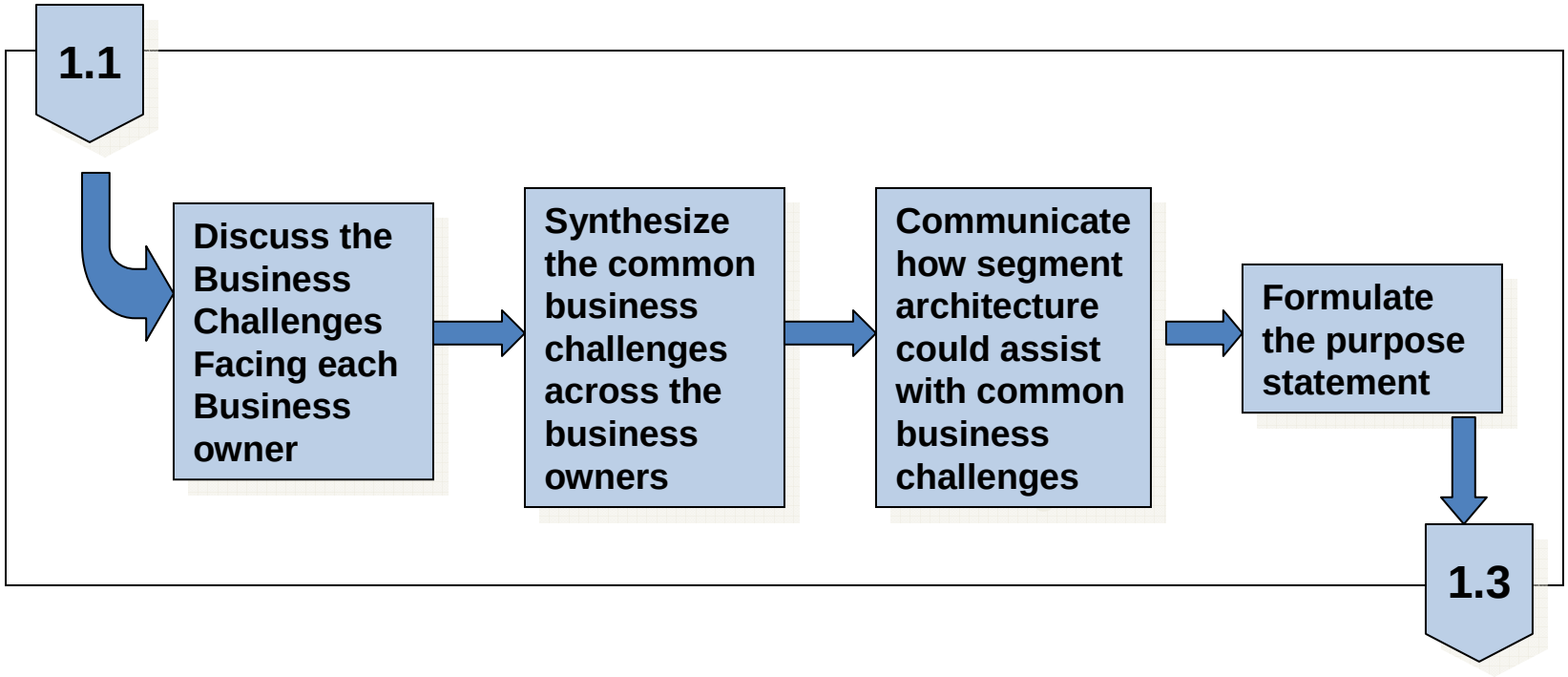
FSAM Development Steps

The FSAM Methodology has a series of ordered steps & Sub-steps that guide the user through the process



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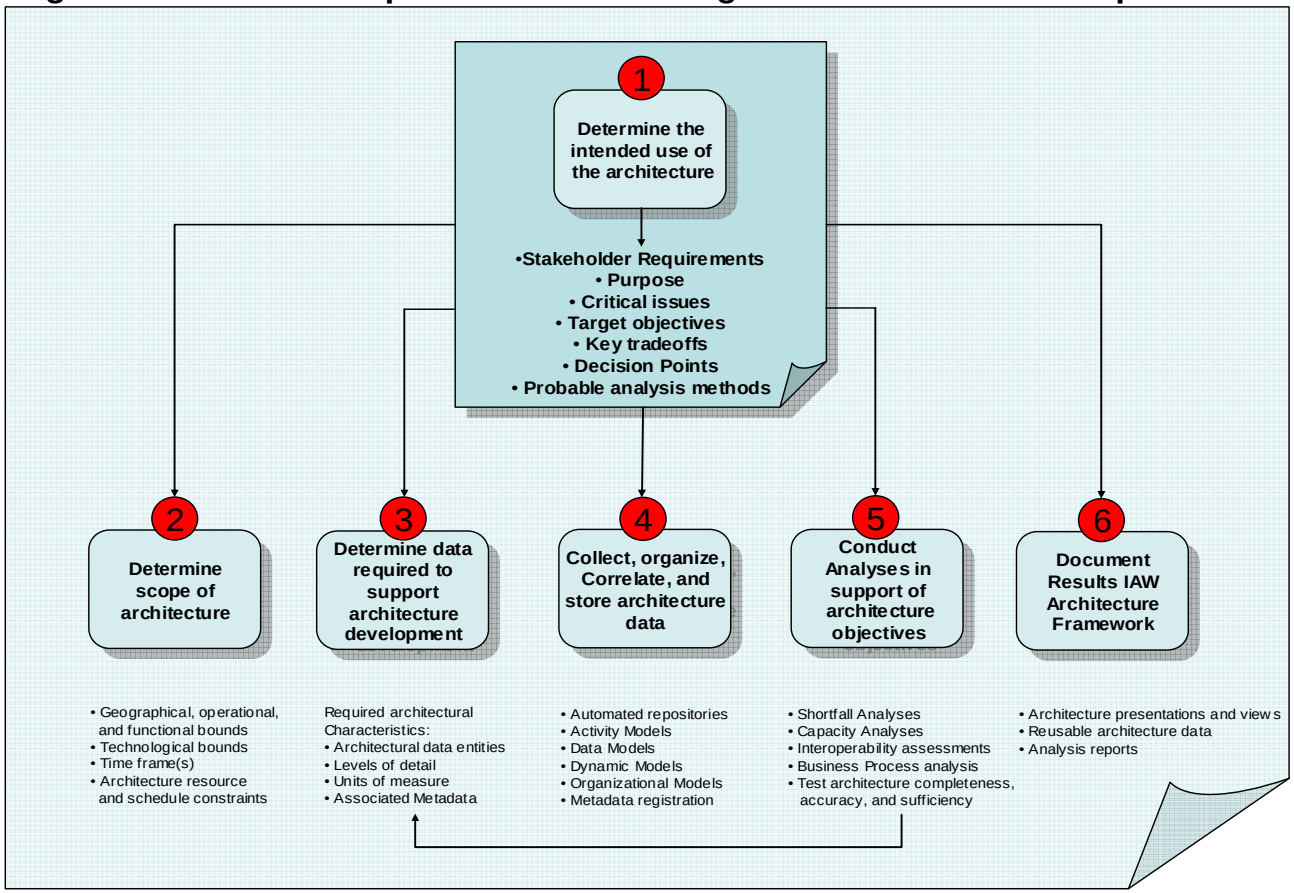
DoDAF 2.0 Methodology

Figure 2-1 The Six-Step Process of Building an Architecture Description



Source: DoD Architecture Framework, Version 2.0, Volume 1, Section 2.1

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DISA Systems Engineering (SE) Program Guidance

- **DISA SE Process Guidance**
  - **Provides high-level guidance, including architectural requirements**
- **DISA SE Reference Manual**
  - **Provides detailed guidance and techniques for creating architectural documentation**
- **CAE Guide for Projects #004**
  - **Provides guidance for all DISA acquisition Projects**

TSA Guidance in DISA Publications are conformant with both FSAM and DoDAF to ensure compliance

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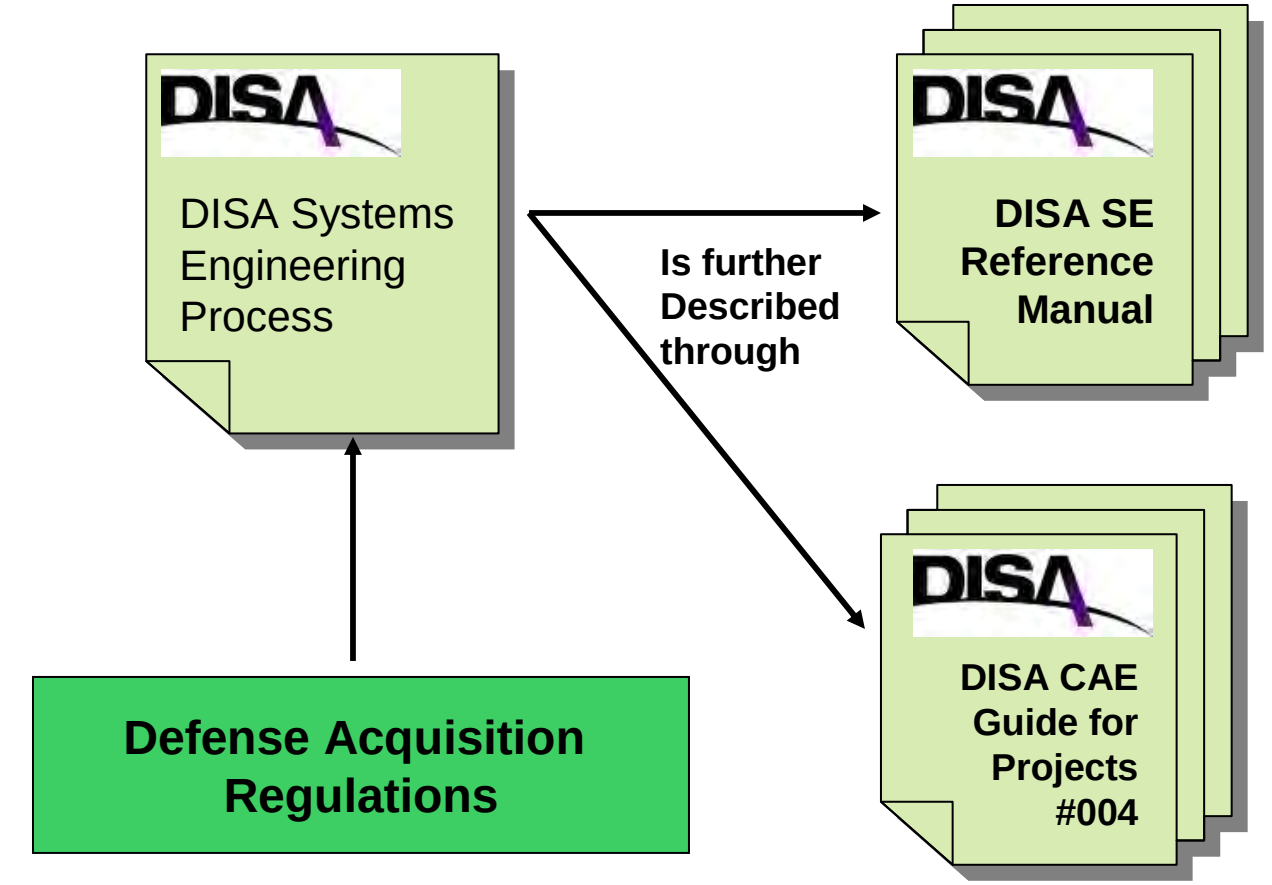
DISA Systems Engineering (SE) Program Guidance



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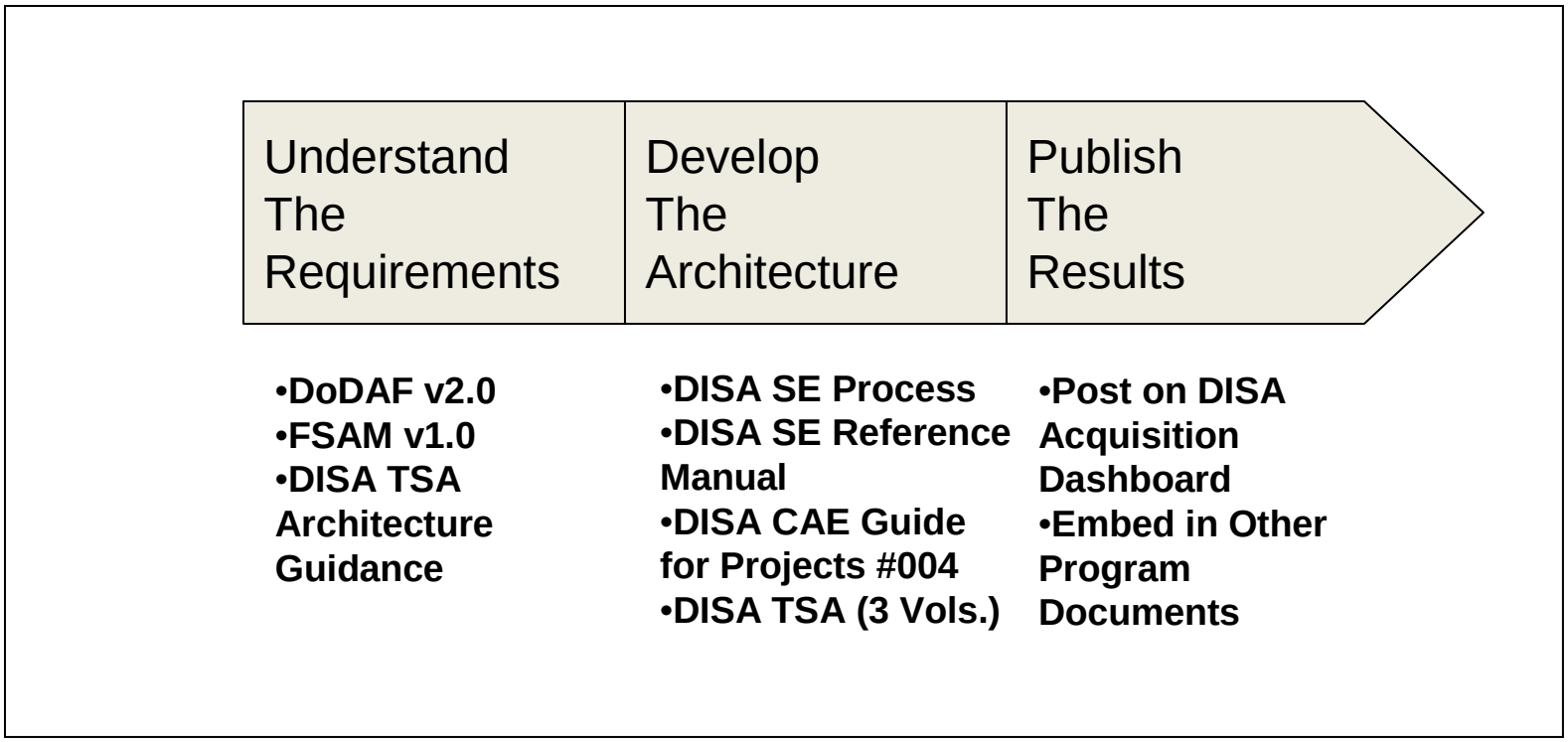
DISA Systems Engineering (SE) Program Guidance



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TSA Key Enablers

- **Data-centric based on the DoDAF meta-model (DM2)**
- **Can be developed from both structured analysis and UML-Based perspectives**
- **Flexibility in presentation views**
  - **DoDAF-described views**
  - **User-described views**

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Why is DISA Creating a TSA

- **The TSA organizes information on ongoing and completed developments in a way that supports understanding of DISA's role as a "principal developer for DoD"**
- **The TSA provides the technical context or 'viewpoint' of that contributes to the overarching enterprise (i.e. DISA) architecture**
- **The TSA can provide a means to better understand how the DISA Campaign Plan will be executed in a way that integrates effort, reduces redundancy and cost, and achieves desired results.**

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Making the TSA Useful

- **Requirements and Performance Analysis**
- **Management Decision-making**
- **Cross Program/Project Integration**

- **Current Examples**
  - **Campaign Plan Analysis**
  - **DISA GIG Convergence Master Plan Evolution**
  - **DISA GIG Strategy**

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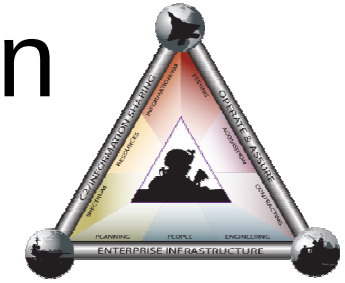
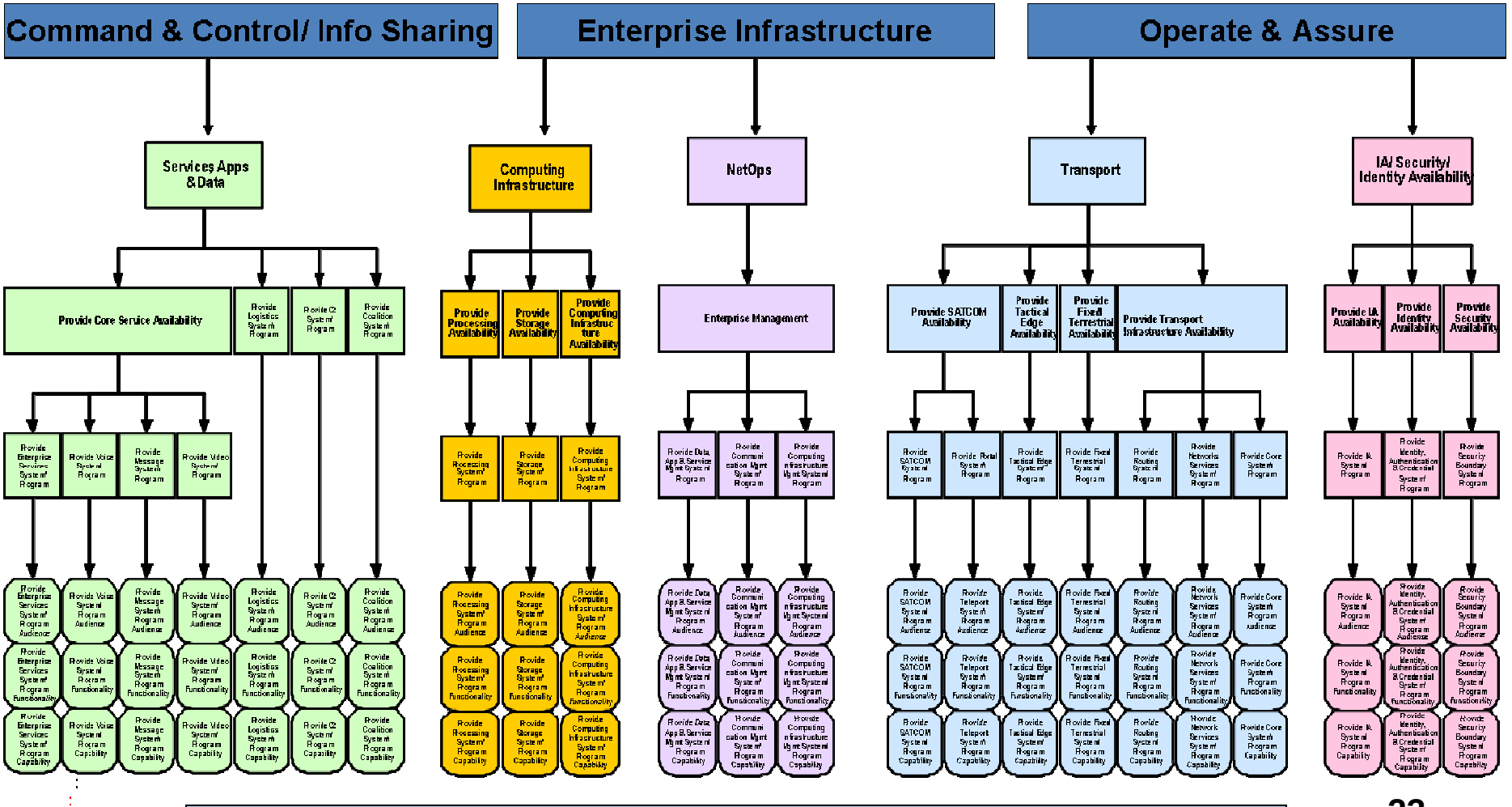
TSA to Campaign Plan Mapping





The DISA TSA reflects the high-level categories found in the GIG & DIEA

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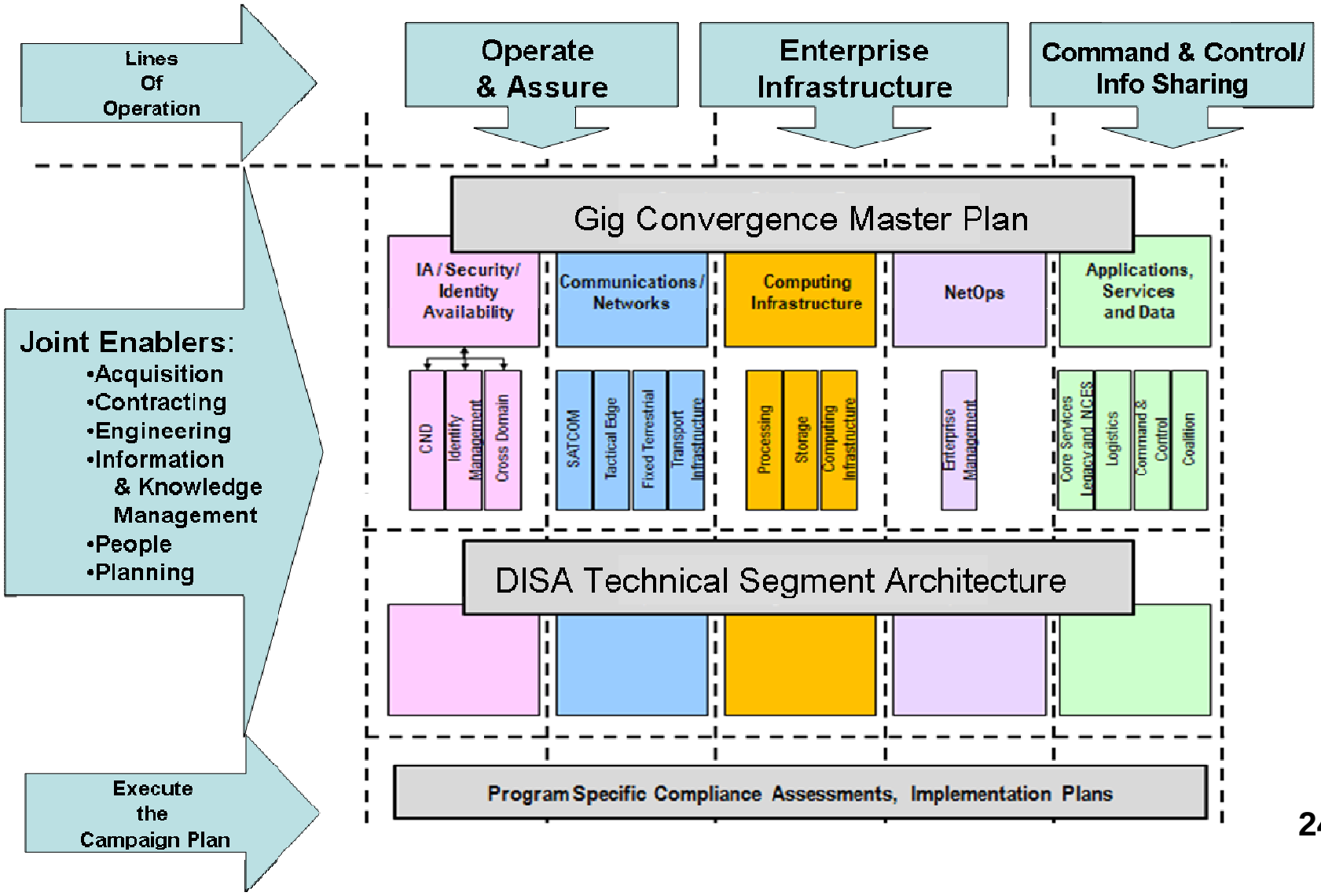
TSA Provided the Framework for GIG Convergence Master Plan Mapping



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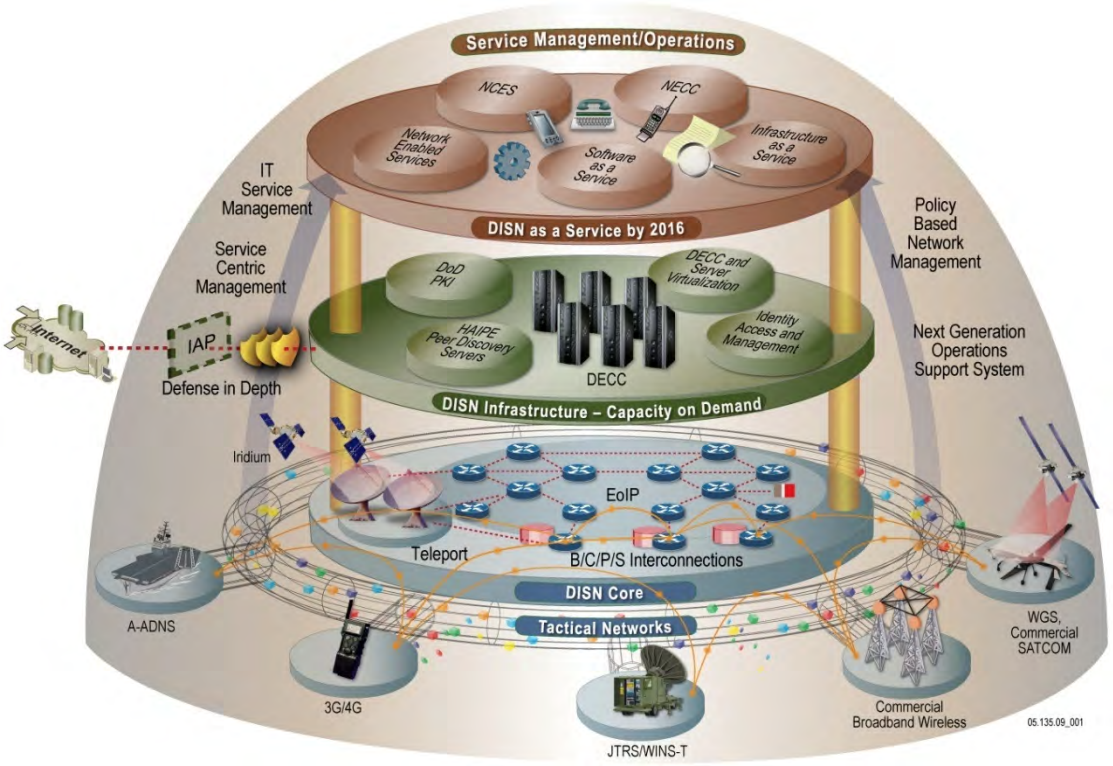
DISA GIG Strategy



- **The GIG provides Warfighters with increased information sharing capabilities over a robust and secure communications infrastructure**
- **Key enabler for this vision is the migration from legacy stove-piped communications to network-centric (IP-based) communications**
- **As the primary service provider of the GIG, DISA will interconnect heterogeneous (e.g., fixed, mobile) DoD assets across a "common core"**

Goal: Provide the Warfighter with ubiquitous GIG connectivity through high capacity terrestrial and SATCOM links

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Using the TSA in Real-time

- **TSA contains the organized set of ‘parts’ for developing an architecture supporting the GIG**
- **The organizing construct is the GIG 2.0 Operational Reference Architecture ‘packages’ that organize the technical classes and components of systems, services, applications, and interfaces**

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Summary & Questions


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Backup Slides

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DoDAF 1.5 to DoDAF 2.0 Changes

Model/View Category	Category Name	Category Description	Comments
AV	All Views	Views that provide overview and other common data	Inherited from previous versions
CV	Capability Views	Models/Views that describe capability requirements	New category – Derived from MODAF
DIV	Data & Information Views	Views that provide data models	Formerly contained in OV/SV Views in previous versions
OV	Operational Views	Views that describe the operational perspective of a development effort	Inherited from Previous Versions
PV	Project Views	Views that contain information about the project under development	New set of views
SvcV	Services Views	Views that describe development of services and applications	New Set of Views, some inherited from DoDAF 1.5
StdV	Standards Views	Views that describe standards utilized in development	Inherited in part from previous versions
SV	Systems Views	Views that describe systems development	Inherited from previous versions

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DoDAF 1.5 to DoDAF 2.0 Crosswalk

DoDAF V1.5 \ DoDAF V2.0	Operational Viewpoint	Systems Viewpoint	Services Viewpoint	All Viewpoint	Standards Viewpoint	Data & Information Viewpoint
AV-1				AV-1		
AV-2				AV-2		
OV-1	OV-1					
OV-2	OV-2					
OV-3	OV-3					
OV-4	OV-4					
OV-5	OV-5a, OV-5b					
OV-6a	OV-6a					
OV-6b	OV-6b					
OV-6c	OV-6c					
OV-7						DIV-2

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DoDAF 1.5 to DoDAF 2.0 Crosswalk

DoDAF V2.0 / DoDAF V1.5	Operational Viewpoint	Systems Viewpoint	Services Viewpoint	All Viewpoint	Standards Viewpoint	Data & Information Viewpoint
SV-1		SV-1	SvcV-1			
SV-2		SV-2	SvcV-2			
SV-3		SV-3	SvcV-3a, SvcV-3b			
SV-4a		SV-4				
SV-4b			SvcV-4			
SV-5a		SV-5a				
SV-5b		SV-5b				
SV-5c			SvcV-5			
SV-6		SV-6	SvcV-6			
SV-7		SV-7	SvcV-7			
SV-8		SV-8	SvcV-8			
SV-9		SV-9	SvcV-9			
SV-10a		SV-10a	SvcV-10a			
SV-10b		SV-10b	SvcV-10b			
SV-10c		SV-10c	SvcV-10c			
SV-11						DIV-3
TV-1					StdV-1	
TV-2					StdV-2	

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References

- **DISA System Engineering Process Guide**
- **DISA Systems Engineering Reference Manual**
- **DISA CAE Guide for Projects #004**
- **DISA Technical Segment Architecture (Baseline) v.1.0**
  - **Volume 1 – Architectural Description (PDF)**
  - **Volume 2 – Implementation Guidance (PDF)**
  - **Architectural Views and Templates (PowerPoint, PDF)**
- **DISA TSA Notional Architectural Views**

A CD-ROM containing all the documents listed above is available at the GE322 booth